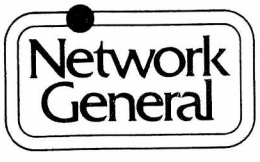
The Sniffer™

Telesniffer™
Operation and Reference Manual



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Manual prepared by Paul Berry
And edited by David M. Trousdale
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Chapter 1.
The Many Uses of *TeleSniffer*

Every Sniffer includes *TeleSniffer*, software that permits you to operate the Sniffer remotely from an IBM-compatible personal computer (PC). The remote PC can be located anywhere, across the room or across the country. The link is by telephone. You attach your own modem to the Sniffer's serial port and a corresponding modem at the remote PC.

When a PC is connected via *TeleSniffer*, it becomes a remote screen and keyboard for a Sniffer located somewhere else. The remote PC can see anything the Sniffer sees, select anything the Sniffer's menus offer, and type anything the operator at Sniffer's keyboard could type.

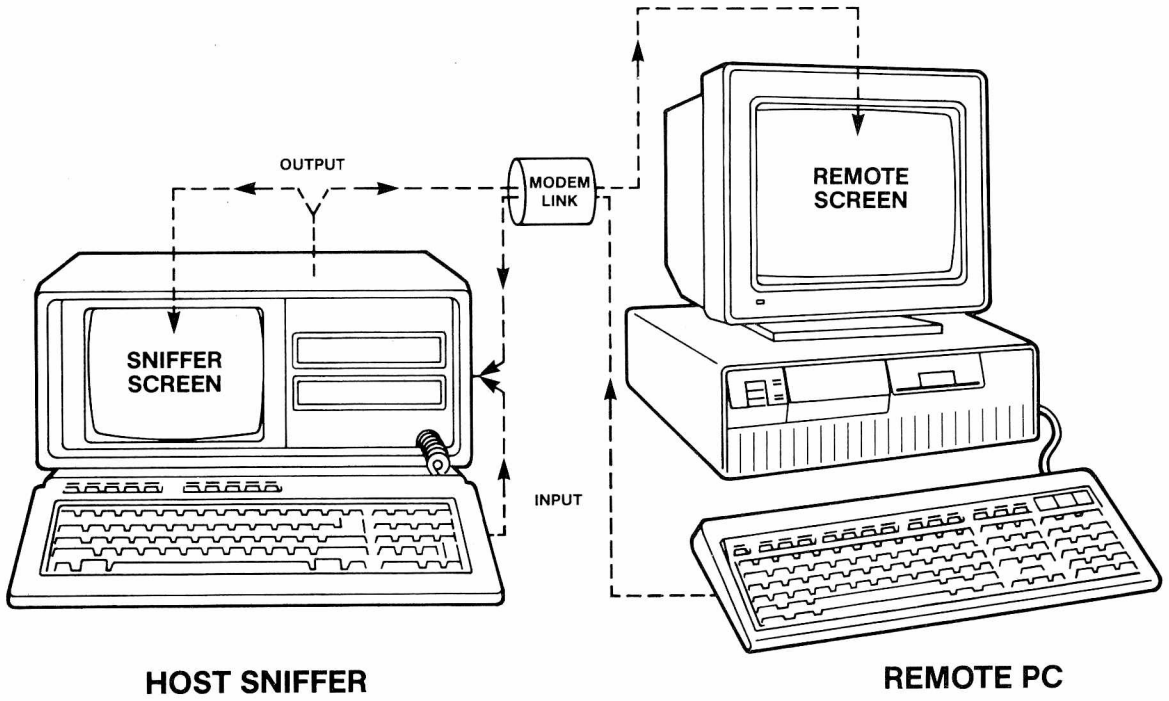

Figure 1. Roles of host (the Sniffer) and remote (any compatible PC) when using TeleSniffer to operate the Sniffer remotely.

Some Examples

TeleSniffer permits communication between any two Sniffers or between any Sniffer and a PC to which you have copied the *remote* portion of the *TeleSniffer* software.* You can use the remote PC to:

- ***View the screen of a Sniffer located somewhere else.***

  For example, you can:

  - ► Dial a Sniffer located on another network.
  - ► See on your PC the same display that's on that Sniffer's screen.
  - ► Dial in turn each of several different Sniffers, each on a different network at a different place.

- ***Control and operate the Sniffer.***

  The remote PC becomes, in effect, a terminal connected to the Sniffer. You aren't just watching what the Sniffer is doing but *operating* the Sniffer, just as you would if you were seated in front of it. For example, you can:

  - ► Make selections from the Sniffer's menus, just as you do where you're seated at the Sniffer itself.
  - ► Supply the name of a file (or any other required text).

- ***Chat with the Sniffer's operator.***

  While your PC is connected to the Sniffer, either you or the Sniffer's operator can open a "chat" window in which text typed at one keyboard appears on the screen of the other machine. (The chat window temporarily replaces the Sniffer's usual display. It doesn't terminate the Sniffer's work but does suspend it while you converse.)

  - ► Exchange messages.
  - ► Pass instructions to the person at the Sniffer's location.

* *TeleSniffer* is used under license from Meridian Technology, Inc. and incorporates some features of their product, *Carbon Copy PLUS*. However, *TeleSniffer* cannot be used to communicate with a machine running *Carbon Copy PLUS*.

- ***Transfer files in either direction.***

  One of the remote PC's options is to enter *TeleSniffer*'s file transfer module (described later in the section headed "Transferring Files to and from the Host Sniffer").

  There are several situations in which it's useful to exchange files between the Sniffer and a remote PC. For example, you can:

  - Download (from Sniffer to PC) a printer file containing a report on the contents of the Sniffer's capture buffer.

  - Download a file of captured frames. Because frames are stored in an internal Sniffer format, you can't read them the way you would ASCII text. However, when you move them to a Sniffer, you can analyze them or play them back just as you could at the Sniffer that captured them.

  - Upload (from PC to Sniffer) a file of names, perhaps a dictionary of symbolic names for station addresses that the Sniffer can use while it interprets captured frames.

  - Upload a file of frames captured elsewhere so the Sniffer can analyze them. For example, you may collect files from several different Sniffers and upload them to a common Sniffer for analysis.

- ***Receive maintenance from Network General.***

  You can arrange to have Network General dial your Sniffer and, thus, temporarily connect to your Sniffer from a remote PC of theirs. That way they can easily check out a question you raise or a problem you report. As you demonstrate on your own machine, they see what you see. As they key in a possible response, you see what they do because it's happening at your Sniffer.

  Using *TeleSniffer's* file-transfer facility, Network General can upload a patch or a revised version of the Sniffer software. It's loaded directly through the telephone link, without having to wait for shipments.

Chapter 2.
What It Takes to Run *TeleSniffer*

Here's a list of the things you need in order to take advantage of *TeleSniffer*.

- ***A PC.***

  You supply your own PC to act as the remote station. A machine with a hard disk is nice but is not essential since *TSRemote* can be run from a floppy. (Since a Sniffer is itself PC-based, it's possible to use another Sniffer as the remote PC.)

- ***A modem link.*** You supply the connection between your remote PC and your Sniffer (or Sniffers). You need:

  - Access to telephone lines at each end.

    You don't need a telephone handset, unless you also want to talk over the phone line. The *TeleSniffer* software can answer the line or dial outgoing calls directly.

  - Two Hayes-compatible modems, one for the host Sniffer and one for the remote PC. They have to be capable of running at the same speed, preferably 2400 baud or faster.

- ***No additional software.*** The Sniffer already has the needed files. They're installed in two directories: `c:\TeleSnif\Host` and `c:\TeleSnif\Remote`. When you run the Sniffer as host, you use the files already installed in `c:\TeleSnif\Host`.

  When you operate a remote PC, you copy the files from the Sniffer's directory, `c:\TeleSnif\Remote`, to a similar directory on the remote PC. (Chapters which follow describe the setup procedure in more detail.)

How it Works: *TeleSniffer's* Main Modules

Each copy of *TeleSniffer* provides two key modules that operate together in complementary fashion, one on the host Sniffer and the other on the remote PC. Each of them has an *installation* module that lets you set or review parameters that govern the way in which *TSHost* and *TSRemote* interact with the equipment and with each other.

The principal modules are:

TSHost This is the program that runs on the host Sniffer. Once started, it remains resident, awaiting a call from a remote PC. *TSHost* remains active in the background while the Sniffer goes about its work of Sniffing. The installation module for *TSHost* is called *HostInst*.

On the host Sniffer, you use *HostInst* to specify passwords and call back procedures by which the host can verify the identity of a remote caller. You can assign an access level to each password and can restrict the way in which the user who signed on with that password will see or will transfer files between host and remote.

TSRemote This is the program that runs on the remote PC. You use it to call the host Sniffer and then to communicate with the Sniffer. Once the link is established, the remote PC's display shows whatever is on the screen of the host Sniffer. The installation module for *TSRemote* is called *RemInst*.

On the remote PC, you use *RemInst* to set up a directory of phone numbers to call and passwords to offer when the host Sniffer requests.

What *TSHost* Does

You run *TSHost* on the Sniffer that acts as host. The person operating the Sniffer must start *TSHost before* the Sniffer can accept a call from a remote PC.

If you expect your Sniffer to receive calls from a remote PC, you can invoke *TSHost* in the Sniffer's file, `autoexec.bat`; that way, *TSHost* is automatically started every time you start the Sniffer, and the Sniffer is always ready to accept a call.

Alternatively, the person operating the Sniffer can select *TeleSniffer* from the Sniffer's main selection menu and thus start *TSHost* only when the need arises.

Once started, *TSHost* immediately terminates but stays resident. It reserves about 46,000 bytes of main memory.* The Sniffer goes on about its usual work. *TSHost* remains dormant until the Sniffer receives either a call from a remote PC or a pre-arranged escape signal from the keyboard.

---

* If you have extensive protocol interpreters, the space reserved for *TSHost* may reduce the space available for capture buffers, but that does not otherwise affect the Sniffer's operation.

When a call comes in, *TSHost* answers it. Provided the caller satisfies *TSHost's* security check, *TSHost* copies the display that's on the Sniffer's screen to the screen of the remote PC. At the remote PC, *TSRemote* displays the screen that *TSHost* has sent it. Both machines have the same display.

TSHost accepts keystrokes typed at the remote PC as input to the Sniffer, just as though you typed them at the Sniffer's keyboard (see Figure 1).

These extra input/output activities of *TSHost* don't stop what the Sniffer was doing previously—unless, of course, the arriving keystrokes spell out instructions that tell the Sniffer to do so.

When the call comes in, the remote user sees the Sniffer's displays on the remote PC's screen if the Sniffer software is already running on the host machine. It's as though the user at the remote PC had stepped up to the controls of a Sniffer already at work.

What *TSRemote* Does

TSRemote is the module you use on the remote PC.

(Since a Sniffer is itself a PC, any Sniffer can play either role. While it's acting as host, a Sniffer can go on Sniffing. However, while it's acting as remote, it can't Sniff at the same time.)

When you start *TSRemote*, it displays a screen on which you indicate the name or telephone number of the Sniffer you want to call. When your call is successful, *TSRemote* displays on your local PC the same image that's on the host Sniffer's screen. What you type at your local PC keyboard is transmitted to the host Sniffer.

You continue in this fashion, with your local PC's screen mirroring the screen of the host Sniffer, until either you or the operator at the host Sniffer press an escape sequence.* That signal causes a *TeleSniffer* control screen to appear. It appears concurrently on the screens of the two machines, both host and remote. From there, you can elect other activities that *TeleSniffer* supports, or you can terminate the link.

When you terminate the link, the remote PC returns to DOS. The host Sniffer goes on with what it was doing (and perhaps has continued to do) before the call came in. Since *TSHost* remains resident, the Sniffer is again ready to accept a call.

* The escape sequence is ordinarily *<Alt><Right-Shift>*. However, *HostInst* and *RemInst* permit either machine to make its own escape sequence something else.

How Host and Remote Screens Keep in Synch

Once communication has been established, *TeleSniffer* tries to assure that the two machines (host Sniffer and remote PC) see *identical* displays. In general, information that appears on the host Sniffer's screen also appears on the screen of the remote PC. Even the *TeleSniffer* control menus appear on both screens, not just the screen of the machine that invoked them.

Anything typed at the remote PC's keyboard becomes input to the host Sniffer. (Anything typed at the host Sniffer's keyboard is also input to the host Sniffer.) It's as though the host is a single processor, but with two screens and two keyboards (see Figure 1).

There are some limitations on this paired display.

The main one is speed. *TSHost* transmits only the characters that have changed since the last display, without trying to retransmit the entire screen. The order in which characters are painted on the remote screen is not necessarily the same as the order in which they're painted at the host Sniffer. When the two machines are linked, there's a noticeable time required to transfer data between them. Managing the joint displays of a host Sniffer coupled with a remote PC necessarily imposes burdens that are not involved when a Sniffer operates alone. Not only must data be transmitted in both directions between the two machines, but the Sniffer must also devote part of its time to managing that transmission.

As long as the speed of the serial interface is the limiting factor on the joint performance of host and remote, increasing the speed of transmission (the baud rate) improves performance. But beyond some optimum speed, a higher rate simply means that transmission must pause to wait for some other critical resource, either in the host Sniffer or the remote PC. For example, when the remote machine is a 6Mhz IBM PC, 2400 baud seems distinctly better than 1200. But speeds much higher than that add little; the maximum supported speed (19.2kb) yields a remote display that is more obviously jerky than the display you get with more moderate speeds. File transfers benefit more directly from increased line speed.

Synchronization Options

There are going to be times when the remote PC is unable to match the speed with which the Sniffer changes its display. A few of the rapid changes in the Sniffer's normal displays are essentially cosmetic; for example, the "zoom" effect of an opening window or the rapid succession of small changes that produce the illusion of smooth scrolling between menu panels. Since such visual effects are not essential, the Sniffer omits them when acting as a host.*

* You can also suppress them when the Sniffer is operating alone by electing the *noscroll* option as a command line parameter when you start the Sniffer.

Even omitting inessential visual effects, a remote PC still can't flash up a screenful of data as fast as a stand-alone Sniffer could. When the remote PC falls behind, there are two main alternatives: either you force the host to slow down, or you permit the remote PC to skip some of the host's output. *TeleSniffer's* default is to synchronize: that is, to force the host Sniffer to slow down, making sure that it doesn't get too far ahead of the remote PC. An option in the main *TeleSniffer* menu, *Data Link Maintenance*, permits you to disable synchronization.

When you *disable* synchronization, you permit the host Sniffer to get ahead of the remote copy. Rather than a continuously-updated display, the remote PC shows a succession of snapshots. "Data Link Maintenance" (below) describes how to set this parameter, and suggests when you'll want to keep synchronization as it is and when you'll be better off disabling it.

Chapter 3.
Setting Up the Host Sniffer

This chapter describes what you have to do to install the hardware and software that a Sniffer will need so that it can serve as host to a remote PC.

Connecting the Modem to the Serial Port

You need a Hayes external modem of the same speed as the modem at the remote PC. You'll probably need to plug the modem's power supply cable to a standard power outlet. Attach the modem's data port to the Sniffer's serial port (which is configured as COM1).

To connect the modem, you need a cable with a female DB-9 connector to match the male DB-9 installed on the card in slot 1. (You can see it in Figure 3-1 of *The Sniffer: Operation and Reference Manual.*) On the modem itself, there's usually a DB-25 connector.

Cable Connections to the Sniffer's Serial Port

The Sniffer's COM1 serial port terminates in a male DB-9 connector. Modems are usually equipped with a DB-25 connector. The DB-9 configuration on the Sniffer is the same as that used on the IBM PC-AT, so the modem may be connected by a standard "AT-to-modem" cable. Its pin connections are shown in Figure 2.

	Sniffer DB-9		*Modem DB-25*
Carrier Detect	DCD	1	8
Receive Data	RCV	2	3
Transmit Data	XMIT	3	2
Data Terminal Ready	DTR	4	20
Signal Ground	GND	5	7
Data Set Ready	DSR	6	6
Request to Send	RTS	7	4
Clear to Send	CTS	8	5
Ring Indicator	RI	9	22

Figure 2. Connections from Sniffer DB-9 to modem DB-25.

Install Software for the Host Sniffer

It isn't necessary to install the *TeleSniffer* software; it's already installed in the Sniffer's hard disk directory, `c:\TeleSnif\Host`.

Prepare Software for the Remote PC

The software you'll need for the remote PC is also installed on the Sniffer's hard disk. It's in the directory, `c:\TeleSnif\Remote`. You should copy all the files in `c:\TeleSnif\Remote` to a diskette. You'll need this diskette in order to install *TeleSniffer* on the remote PC.

Configure *TeleSniffer* on the Host Sniffer

Before you can run *TSHost* on the host Sniffer, you have to create a configuration file. It contains the values of various parameters that *TSHost* needs when it runs. To create or revise the configuration file, you run a program called *HostInst*. When the existing configuration file is appropriate, you don't have to run *HostInst* again. However, you must set the configuration *before* you start *TSHost* for the first time.*

Among other things, running *HostInst* permits you to tell *TeleSniffer*:

- The type of modem you've installed and other characteristics of your communication link. It's important that the two modems match, i.e., use the same speed, the same data encoding parameters, and so on.
- The passwords you'll require of remote PCs that call the host Sniffer, and the powers you grant to each caller.
- The startup keystrokes for bringing up the *TeleSniffer* control screen.
- The enablement of the call back security feature.

HostInst's Main Menu

When you run *HostInst*, it starts by putting up its main menu (Figure 3). Here you can set the values of several parameters. Before you leave *HostInst's* main menu, you should elicit in turn each of its two submenus, labeled *1* and *3*.*

* It's possible to run *HostInst* again after you've started *TSHost*, but the changes won't take effect until the next time you reset the host machine.

* *HostInst* and *RemInst* start with the same main menu. Between them they have three submenus; 1 and 3 appear in the host version, and 1 and 2 in the remote version.

The available submenus are:

1 -- ***Optional Configuration Parameters***. Settings for the machine on which you are running *HostInst*.

3 -- ***Password Table***. The list of passwords, the access levels to TSDOS, and the call back numbers the host will use to interact with remote callers.

```
                TeleSniffer Host Parameters, V1.00

     GENERAL PARAMETERS                              EXIT OPTIONS

A -- Com Port Address......COM1                 Q -- Quit, changes not saved
B -- Baud Rate.............2400                 X -- eXit, changes saved
C -- Modem Type............Hayes
D -- System Type...........Compaq 286
E -- Display Type..........Monochrome
F -- Menu Colors...........White on Black
G -- Default Directory.....C:\TELESNIF\HOST


     MENU LIST

1 -- Optional Configuration Parameters

3 -- Password Table


                        Type letter for selection:
```

Figure 3. HostInst's main menu.

Choices in *HostInst's* Main Menu

In setting a value for each of the options *A* to *G*, you're telling *TeleSniffer* how the host (the machine you are now using) is equipped. Options *B* and *C*, the baud rate and the modem type, *must* be compatible with the equipment and options of the other machine.

The options *A* to *F* are multiple choice items. Each time you press one of the letters *A*, *B*, *C*, *D*, *E*, or *F*, the display shows another possible value for that item. Pressing a letter repeatedly thus steps you through all the possible settings. Keep pressing until you see the appropriate one.

The available menu options are:

A* -- *Com Port Address. Determine where the comunications port is configured. On a host Sniffer, it is always *COM1*.

B* -- *Baud Rate. Specify the speed with which *TeleSniffer* should supply data to the serial port. When you're using a modem, this is determined by the speed of the modem.

C -- Modem Type. Identify the type of modem, so *TeleSniffer* can send appropriate commands to the modem.

Watch out: A number of manufacturers use the phrase "Hayes compatible" to describe modems whose command structure is generally similar to the one used by Hayes. Nevertheless, some of these modems differ significantly from what the *TeleSniffer* software expects. Such allegedly compatible modems may not work correctly with *TeleSniffer*.

D -- System Type. Identify the type of processor this machine is. On a host Sniffer, specify "Compaq 286."

E -- Display Type. Specify whether you have a color display or not. Your answer here affects only the display of *TeleSniffer* control screens, and not the display of Sniffer screens.

F -- Menu Colors. This affects only the way *TeleSniffer* displays its own menus on this machine.

Note that Sniffer screens transmitted from the host to the remote PC are *not* affected by the setting of options *E* or *F*, either at the host or at the remote PC. The attributes of a Sniffer display are controlled solely by the settings in the Sniffer's menus or startup parameters. Each Sniffer screen is transmitted from host to remote PC with exactly the same attributes (color, intensity, blink, etc.) it had on the Sniffer's own display. When you're using a remote PC to look at the Sniffer, it's important to set the Sniffer's attributes to something the remote PC can interpret. However, that's done in the Sniffer's own menus, not by your response to option *E* or *F*.

G -- Default Directory. Specify the default directory in which *TSHost* will look for the source of files exported from the host Sniffer or the destination of files imported to the host Sniffer by the file transfer module.

Option *G* is a fill-in item. When you press *G*, it opens a window in which you write the path to the default directory (for example, `C:\TELESNIF\HOST`). When you've written your answer, press *Enter*.

EXIT OPTIONS. Don't exit from the menu until you've also set options in the submenus. You bring up a submenu by entering the number *1* or *3*.

When you've taken care of the submenus and are ready to exit *HostInst*, *X* records everything you've done, while *Q* simply quits and leaves things as they were before you started.

Additional Parameters Affecting the Host

Submenu *1*, *Optional Configuration Parameters*, permits you to describe some additional attributes of the host. (The top half of the menu is essentially the same for the remote PC.)

```
                    Optional Configuration Parameters
      Options for Host

A -- Normal Modem Mode.....Answer              F10 -- Exit to Main Menu
B -- Answer Ring Count.....Default
C -- Redial Attempts.......None
D -- Redial Delay..........None
E -- (Unused) .............None
F -- Startup Key Strokes...<ALT><RIGHT-SHIFT>


G -- Reboot on Exit........No
H -- Call Back.............No
I -- Password Attempts.....Unlimited
J -- Inactivity Time-Out...None
K -- Re-paint Key Strokes..<CTRL><RIGHT-SHIFT>


L -- (Unused)              None

                      Type letter for selection:
```

Figure 4. HostInst's submenu 1, Optional Configuration Parameters.

The available menu options are:

A -- Normal Modem Mode. Should the host accept an incoming call? The setting must be *Answer* if the remote PC is to get through.

B -- Answer Ring Count. When receiving an incoming call, how quickly should the host Sniffer answer the phone?

The default is after *1* ring. You can set a higher number, anywhere from *2* to *31*. Obviously, a higher value takes more time. Some people set a high value because the equipment requires it or as a security measure to avoid answering wrong numbers or random dialers.

C -- Redial Attempts. When placing an outgoing call (as part of the *Call Back* security feature, option *H*), should the host try again if the call does not get through (for example, because the called machine is busy) and, if so, how many times? The default is *0* ("don't try again"), and the maximum you can set is *99* retries.

D -- Redial Delay. If your answer to *C* was greater than *0*, how many seconds should the host Sniffer wait before redialing? The minimum (marked *None*) is *5* seconds. The maximum you can set is *90* seconds.

E -- Unused. Not used in the submenu.

F -- Startup Key Strokes. Select the keystrokes which form the *TeleSniffer* escape sequence.

After *TSHost* has been started and a link with a remote PC has been terminated, *TSHost* stays resident (with the Sniffer is doing something else, i.e., Sniffing). At this point, pressing the *TeleSniffer* escape sequence brings up the *TeleSniffer* control screen. (When there's a remote PC signed on to the host Sniffer, the *TeleSniffer* control screen is displayed at *both* machines.)

The choices for your machine's *TeleSniffer* escape sequence are:

```
<Alt><Right-Shift>
<Alt><Left-Shift>
<Ctrl><Alt>
<Left-Shift><Right-Shift>
<Ctrl><Left-Shift>
```

G -- Reboot on Exit. When a call from a remote PC terminates, should the host Sniffer reboot? The default is *No*. That's the setting we recommend.

The possible advantage of rebooting is that you are, thereby, assured that even if the remote user did something that left the host Sniffer in some undesirable state, the effect is not lasting since the host reboots. The disadvantage is that you may not wish to lose continuity of a Sniffer session.

H -- Call Back. If the host Sniffer's password table requires it to call back to verify an incoming call, this must be set to *Yes*. Otherwise, it is not needed and may remain at *No*.

I -- Password Attempts. When the host receives a call from a remote PC and the remote PC fails to supply a valid password, should the host hang up? Or should it permit the remote PC to try again? And if so, how many times? The default is *Unlimited.* You may leave it that way, or set it to any number from *0* to *15* additional attempts.

J -- Inactivity Time-Out. When a remote PC is connected to the host, but is neither receiving displays from the host nor sending any other commands, should the host hang up the line? And if so, after how long an interval of inactivity?

The default is *None* (meaning "Take no action to disconnect"). You may leave it that way or select any number of minutes of inactivity from *0* to *15*.

K -- Re-paint Key Strokes. When the screen display has been interrupted (for example, by superimposing the *TeleSniffer* control screen when the Sniffer was generating a Sniffer display), the previous image may have been contaminated or destroyed. Pressing the repaint escape sequence (at either host or remote) causes the host Sniffer to retransmit the current host screen to the remote PC.

The choices for your machine's repaint escape sequence are:

```
<Ctrl><Right-Shift>
<Ctrl><Left-Shift>
<Alt><Left-Shift>
<Ctrl><Alt>
<Left-Shift><Right-Shift>
```

However, you shouldn't make the repaint escape the same as the *TeleSniffer* escape (option *F*).

L -- Unused. Not used in the submenu.

The Host's Password Table

On a Sniffer that will play the role of host, you must set up a table of passwords that the host will accept by pressing *3* in the *HostInst* main menu. For each password, you may specify the number to which the host will call back (if you selected the *Call Back* option on submenu *1*, *Optional Configuration Parameters*) and the level of access to the file transfer facility that you grant to the remote user who sends that password.

```
                    PASSWORD TABLE
(A)Add (D)Del (Home)1stPg (End)LastPg (PgUp)PrevPg (PgDn)NextPg (F10)Menu

01. TS                  #:                          Opts:TSDOS
02. QUIMOUNESA          #:                          Opts:TSDOS
03. LIMON               #:415 555 4301              Opts:TSDOS
04. MELOCOTON           #:                          Opts:LTD TSDOS
05. UVA                 #:                          Opts:No TSDOS
06.                     #:                          Opts:
07.                     #:                          Opts:
08.                     #:                          Opts:
09.                     #:                          Opts:
10.                     #:                          Opts:
11.                     #:                          Opts:
12.                     #:                          Opts:
13.                     #:                          Opts:
14.                     #:                          Opts:
15.                     #:                          Opts:
16.                     #:                          Opts:
17.                     #:                          Opts:
18.                     #:                          Opts:
19.                     #:                          Opts:
20.                     #:                          Opts:
                         Type letter for selection:
```

Figure 5. Password Table for a host Sniffer.

Passwords

In the first column of the *Password Table*, you list the set of passwords which the host Sniffer will accept. You may specify up to 64 different passwords. To add a password, select *A* from the *Password Table*, and press *Enter*. The password will be added to the end of the list. To delete a password, select *D*. You will be prompted to enter the number of the password you want to delete.

Call Back Numbers

In the second column of the *Password Table*, you list the telephone number which *TeleSniffer* will dial upon receiving an incoming call and verifying the password of the caller.

Levels of Access

In the third column and after the *Opts:* headings, you indicate which of three levels of access you grant to the remote user who signs on with that password. These levels affect the remote user's access to TSDOS. TSDOS is used in *TeleSniffer's* file-transfer facility. It is called TSDOS because its commands and conventions are designed to look like those of DOS. For example, it uses commands such as DIR to request a directory list, COPY to transfer a file, and so on. (See the section entitled "Transferring Files to and from the Host Sniffer" for more information on file transfer and on TSDOS.)

The possible levels are:

TSDOS The remote user has full use of TSDOS.

LTD TSDOS The remote user can use TSDOS but has access to files on the host machine only in the host's current directory. The remote user cannot change the host's current directory and cannot delete, rename, or overwrite an existing file.

No TSDOS The remote user cannot use TSDOS and, hence, cannot transfer files between host and remote PC.

Arrange How *TSHost* Will Start

There are two ways to start *TSHost*:

- ***Automatically***, every time you turn on power to the host Sniffer (or reset it).

  When you choose automatic start, *TSHost* remains resident, waiting for an incoming call (or the *TeleSniffer* escape sequence from the keyboard). While it waits, the host Sniffer can go about its business. However, it ties up about 46k bytes of main memory, whether or not a call comes in for it.

- ***Manually***, as needed. When you want the Sniffer to be ready to play its role as host, you start it. You can do so either at the DOS prompt, by executing `TSHost`, or by highlighting *TeleSniffer Host* in the Sniffer's selection menu (see Figure 9). Either way, once started, *TSHost* remains resident until the Sniffer is reset or its power turned off.

Setting Up for Automatic Start

To have *TSHost* start every time you start or reset the Sniffer,

Edit the file `c:\autoexec.bat` to insert the statement

```
TSHost
```

ahead of the last line (which says `menu`).

Set the Sniffer's Display so the Remote PC Can Read It

When you select display attributes for the Sniffer (in the Sniffer's main selection menu), you are thereby making the choice for the remote PC also.* When you expect a remote PC to be dialling in to your Sniffer, as far as possible you should select display options for the Sniffer which also make sense on the screen of the remote PC. *TeleSniffer* transmits characters from the host Sniffer's screen to the remote PC just as they are on the host machine, including all their attributes (color, intensity, blink, reversal, etc.).

* The settings display options in *HostInst's* menus refer only to display of *TeleSniffer's* own menus, not to the way it displays anything else.

Chapter 4.
Setting Up the Remote PC

This chapter describes what you have to do to install the hardware and software that a remote PC will need so that it can call a host Sniffer.

Connecting the Modem to the Serial Port

Install a modem which operates at the same rate as the one you've installed on the host Sniffer. Attach it to an available serial port on the remote PC.

The cables required vary, depending on the PC and the modem. Machines of the PC and XT type usually have DB-25 connectors for the serial port, while machines of the AT type usually have DB-9 connectors.

Install Software for the Remote PC

Use the diskette you created earlier, containing files copied from the Sniffer's directory `c:\TeleSnif\Remote`.

- On a remote PC with a hard disk, create a directory called `\TeleSnif\Remote`. Copy into it the *TeleSniffer* files that you earlier copied from the Sniffer to a diskette.
- For a remote PC without a hard disk, insert the diskette.

Configure *TeleSniffer* on the Remote PC

Before you can run *TSRemote* on the remote PC, you have to create a configuration file. It contains the values of various parameters that *TSRemote* needs when it runs. To create or revise the configuration file, you run a program called *RemInst*. When the existing configuration file is appropriate, you don't have to run *RemInst* again. However, you must set the configuration *before* you start *TSRemote* for the first time.

If you've installed the *TSRemote* software in a directory on the remote PC's hard disk, *RemInst* writes the configuration file in the same directory. If you don't have a hard disk and run from a diskette, *RemInst* writes the configuration file on the same diskette. When the existing configuration file contains appropriate settings, you don't have to run *RemInst* again.

Among other things, running *RemInst* permits you to tell *TeleSniffer*:

- The type of modem you've installed and other characteristics of your communication link. It's important that the two modems match, i.e., use the same speed, the same data encoding parameters, and so on.

- The phone number of each of the Sniffers you may call, so *TSRemote* can place a call to it. You may also include, if you wish, the password that the host Sniffer will expect. If you don't include a password in the table, *TSRemote* prompts you to supply a password each time you place a call.

- The startup keystrokes for bringing up the *TeleSniffer* control screen.

RemInst's Main Menu

When you run *RemInst*, it starts by putting up its main menu (Figure 6). The menu is almost identical to the one displayed by *HostInst*, but the description is repeated here so you don't have to leaf back and forth to find it. In *RemInst's* main menu, you can set the values of several parameters. Before you leave it, you should elicit in turn each of its two submenus, labeled *1* and *2*. The submenus are:

***1* -- *Optional Configuration Parameters*.** Settings for the machine on which you are running *RemInst*.

***2* -- *Call Table*.** Host phone numbers and passwords for a machine that will play the role of remote PC and will connect to a Sniffer by telephone.

```
TeleSniffer Remote Parameters, V1.00

     GENERAL PARAMETERS                              EXIT OPTIONS

A -- Com Port Address......COM2                  Q -- Quit, changes not saved
B -- Baud Rate.............2400                   X -- eXit, changes saved
C -- Modem Type............Hayes
D -- System Type...........IBM Compatible
E -- Display Type..........Monochrome
F -- Menu Colors...........White on Black
G -- Default Directory.....C:\TELESNIF\REMOTE


     MENU LIST

1 -- Optional Configuration Parameters
2 -- Call Table Maintenance



                    Type letter for selection:
```

Figure 6. RemInst's main menu.

Choices in *RemInst*'s Main Menu

In setting a value for each of the options *A* to *G*, you're telling *TeleSniffer* how the remote PC is equipped. Options *B* and *C*, the baud rate and the modem type, *must* be compatible with the equipment and options of the host Sniffer.

The options *A* to *F* are multiple choice items. Each time you press one of the letters *A*, *B*, *C*, *D*, *E*, or *F*, the display shows another possible value for that item. Pressing a letter repeatedly thus steps you through all the possible settings. Keep pressing until you see the appropriate one.

The available menu options are:

***A* -- *Com Port Address*.** Determine where the remote PC's communications port is configured (COM1, COM2, etc.).

***B* -- *Baud Rate*.** Specify the speed with which *TeleSniffer* should supply data to the serial port. When you're using a modem, this is determined by the speed of the modem.

***C* -- *Modem Type*.** Identify the type of modem, so *TeleSniffer* can send appropriate commands to the modem.

Watch out: A number of manufacturers use the phrase "Hayes compatible" to describe modems whose command structure is generally similar to the one used by Hayes. Nevertheless, some of these modems differ significantly from what the *TeleSniffer* software expects. Such allegedly compatible modems may not work correctly with *TeleSniffer*.

D -- System Type. Identify the type of processor this machine is. If you're using a Sniffer as the remote PC, specify "Compaq 286."

E -- Display Type. Specify whether you have a color display or not. Your answer here affects only the display of *TeleSniffer* menus and not the display of Sniffer screens.

F -- Menu Colors. This affects only the way *TeleSniffer* displays its own menus on the remote PC.

Note that Sniffer screens transmitted from the host are *not* affected by the setting of options *E* or *F*, either at the host or at the remote PC. The attributes of a Sniffer display are controlled solely by the settings in the host Sniffer's menus or startup parameters. Each Sniffer screen is transmitted from host to remote PC with exactly the same attributes (color, intensity, blink, etc.) it had on the Sniffer's own display. When you're using a remote PC to look at the Sniffer, it's important to set the Sniffer's display attributes to something the remote PC can interpret. However, that's done in the Sniffer's own menus, not by your response to option *E* or *F*.

G -- Default Directory. Specify the default directory in which *TSRemote* will look for the source of files exported to the host Sniffer, or the destination of files imported from the host Sniffer by the file transfer module.

Option *G* is a fill-in item. When you press *G*, it opens a window in which you write the path to the default directory (for example, C:\TELESNIF\REMOTE). When you've written your answer, press *Enter*.

EXIT OPTIONS. Don't exit from the menu until you've also set options in the submenus. You bring up a submenu by entering the number *1* or *2*.

When you've taken care of the submenus and are ready to exit *RemInst*, type *X* to record everything you've done and *Q* to simply quit, leaving things as they were before you started.

Additional Parameters Affecting the Remote PC

Submenu *1, Optional Configuration Parameters*, permits you to describe some additional attributes of the remote PC.

```
                    Optional Configuration Parameters
      Options for Remote

A -- Normal Modem Mode.....Answer              F10 -- Exit to Main Menu
B -- Answer Ring Count.....Default
C -- Redial Attempts.......None
D -- Redial Delay..........None
E    (Unused)..............None
F -- Startup Key Strokes...<ALT><RIGHT-SHIFT>


G    (Unused)              None
H    (Unused)              None
I    (Unused)              Unlimited
J    (Unused)              None
K    (Unused)              <CTRL><RIGHT-SHIFT>


L    (Unused)              None

                       Type letter for selection:
```

Figure 7. RemInst's submenu 1, Optional Configuration Parameters.

The available menu options are:

A -- Normal Modem Mode. Should the remote PC accept an incoming call?

This setting must be *Answer* when the host uses the *Call Back* security feature. When the host Sniffer receives an incoming call and password, it hangs up the phone line and places a call back to the remote PC. This assures that the caller not only has the password but is phoning from the place that the host Sniffer expects.

B -- Answer Ring Count. When receiving an incoming call, how quickly should the remote PC answer the phone?

The default is after 1 ring. You can set a higher number, anywhere from 2 to 31. Obviously, a higher value takes more time. Some people set a high value either because the equipment requires it or as a security measure to avoid answering wrong numbers or random dialers.

C -- Redial Attempts. When placing a call to host Sniffer, should the remote PC try again if the call does not get through (for example, because the host Sniffer is busy), and if so how many times? The default is *0* (don't try again), and the maximum you can set is *99* retries.

D -- Redial Delay. If your answer to *C* was greater than *0*, how many seconds should the host wait before redialing? The minimum (marked *None*) is *5* seconds. The maximum you can set is *90* seconds.

E -- Unused. Not used in the submenu.

F -- Startup Key Strokes. Select the keystrokes which form the *TeleSniffer* escape sequence.

After a link is established, pressing the *TeleSniffer* escape sequence brings up the *TeleSniffer* control screen while *TSRemote* is displaying screens generated by the host Sniffer. (The control screen appears at *both* the remote PC and the host Sniffer.)

The choices for the remote PC's *TeleSniffer* escape sequence are:

```
<Alt><Right-Shift>
<Alt><Left-Shift>
<Ctrl><Alt>
<Left-Shift><Right-Shift>
<Ctrl><Left-Shift>
```

G to L -- Unused. Not used in the submenu.

The Remote PC's Call Table

Fill in the *Call Table* by pressing *2*, *Call Table Maintenance*, in the main *RemInst* menu. The *Call Table* provides a convenient way to store frequently-dialed numbers and their associated passwords. If you do enter a name, a phone number, and a password, both the phone number and the password will automatically sent to the host station when you select the appropriate name. It isn't necessary to set up a *Call Table*; you can always key in the number to be dialed, regardless of what's in the table.

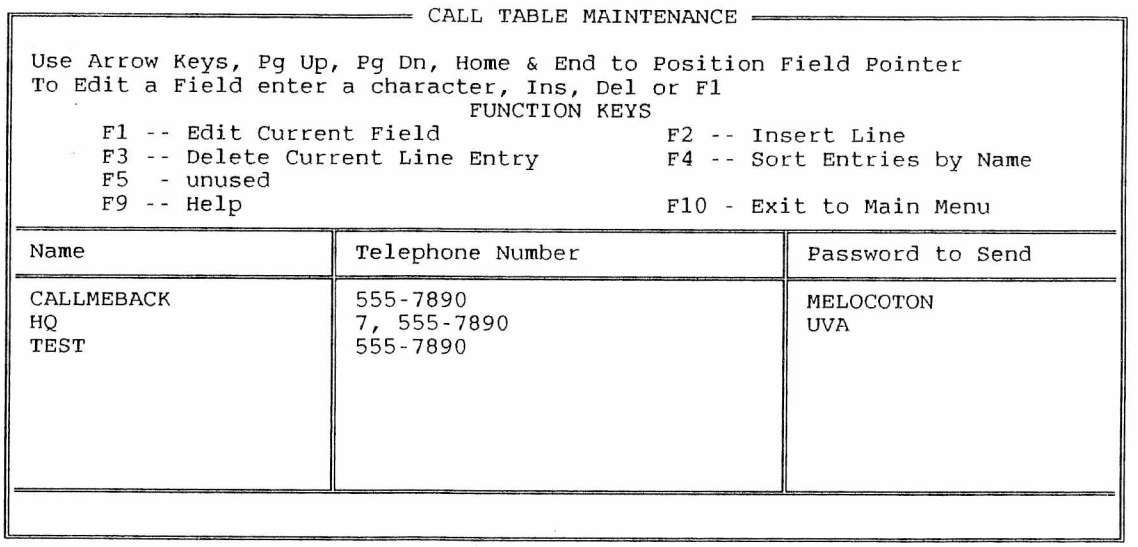

Figure 8. Call Table Maintenance submenu for a remote PC.

The *Call Table* has three fields, as follows:

Name An arbitrary mnemonic, serving as a label or reminder to the user. The name must not start with a number (since *TSRemote* would then be unable to distinguish it from a phone number).

Number The number to be called. Insert a comma to indicate a pause (for example, after dialing 9 for an outside line). Use the letter "P" before the number to indicate pulse rather than tone dialing.

Password The password to supply to the host Sniffer. If you write a password in this field, *TSRemote* automatically transmits it to the host Sniffer when it places a call. If you leave the field blank, *TSRemote* prompts you to type a password each time you call.

A submenu provides options for maintaining the *Call Table*. Use the arrow keys and the *Page Up*, *Page Down*, *Home*, and *End* keys to move the cursor around the table.

For routine maintenance procedures, the available function key options are:

F1 -- Edit Current Field. Selects a field for editing. Use the *Delete* key to delete a character, the *Insert* key to insert spaces between characters, and the right or left arrow key to move the cursor a single position in the field. Press *Enter* when finished editing a field.

F2 -- Insert Line. Inserts a line on the screen, and moves the line you are on and all the lines below it down one line.

F3 -- Delete Current Line Entry. Deletes the line you are on, and moves the line below it up one line.

F4 -- Sort Entries by Name. Sorts the names alphabetically and automatically upon return to the *Optional Configuration Parameters* menu.

F5 -- Unused. Not used in the submenu.

F9 -- Help. Displays further information on the use of the functions keys.

F10 -- Exit to Main Menu. Returns to the *Optional Configuration Parameters* menu

Chapter 5.
Starting *TSHost* from a Host Sniffer

This chapter describes how you start *TeleSniffer* from the host Sniffer so that it is ready to accept calls from a remote PC. (The chapter assumes that *TeleSniffer* has already been installed and configured, as described in "Setting Up the Host Sniffer" above.)

Automatic Start

When the `TSHost` statement has been included in the `autoexec.bat` file, there is nothing to do. *TSHost* is always running whenever the machine is running (or at least whenever it has been booted from the hard disk).

Start on Demand

This is something you do on a machine where `TSHost` is *not* in `autoexec.bat` and so does *not* start automatically each time you start or reset the machine.

Go to the *Sniffer selection menu*. If you're already running the Sniffer, you must first press *F5* to return to the main menu and then select *Exit* from that menu.

In the *Sniffer selection menu*, highlight *TeleSniffer*, and press *Enter*. Then, in the *TeleSniffer selection menu*, choose *Start Host* and press *Enter* (see Figure 9).

Alternatively, if you exit to DOS, type from the DOS prompt:

```
TSHost
```

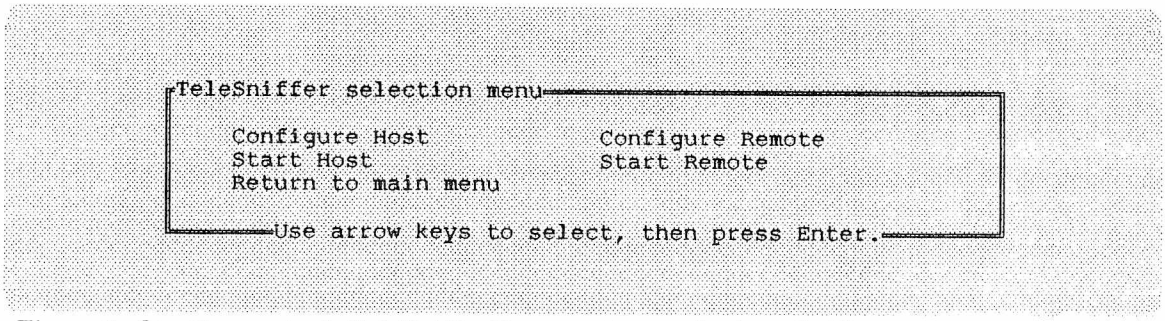

Figure 9. Starting a single TeleSniffer Host session on the host Sniffer.

TSHost Remains Resident

Once *TSHost* has started (whether automatically, in response to a command included in the `autoexec.bat` file, or in response to your specific request), it sets aside a portion of memory and remains resident. It does nothing further until it is awakened by either of the following:

- A phone call arriving at the modem connected to the host Sniffer's serial port, COM1.
- The *TeleSniffer* escape sequence typed from the keyboard. The escape sequence is *<Alt><Right-Shift>*, unless you set it to something else while running HostInst.

Response to an Incoming Call

When the host Sniffer receives a call, there is no visible sign at its screen. If another program is running (for example, the Sniffer is Sniffing), that activity continues uninterrupted.

If the connection is successful, the remote PC starts to see the image displayed on the host Sniffer's screen.

If the operator of the remote PC presses keys on the remote keyboard, what the remote operator types appears on the host Sniffer's screen as though typed by the host operator.

Invoking the *TeleSniffer* Control Screen

Once *TSHost* has been started, typing the *TeleSniffer* escape sequence brings up the *TeleSniffer* control screen with a set of three windows, including one with the *TeleSniffer* main menu. (The sequence is *<Alt><Right-Shift>*, unless you've set it to one of the other optional values).)

Before a remote PC is connected to the host Sniffer, you see a screen like the one shown in Figure 10 with the message, *NO Data Link is Established*, visible in the bottom left window.

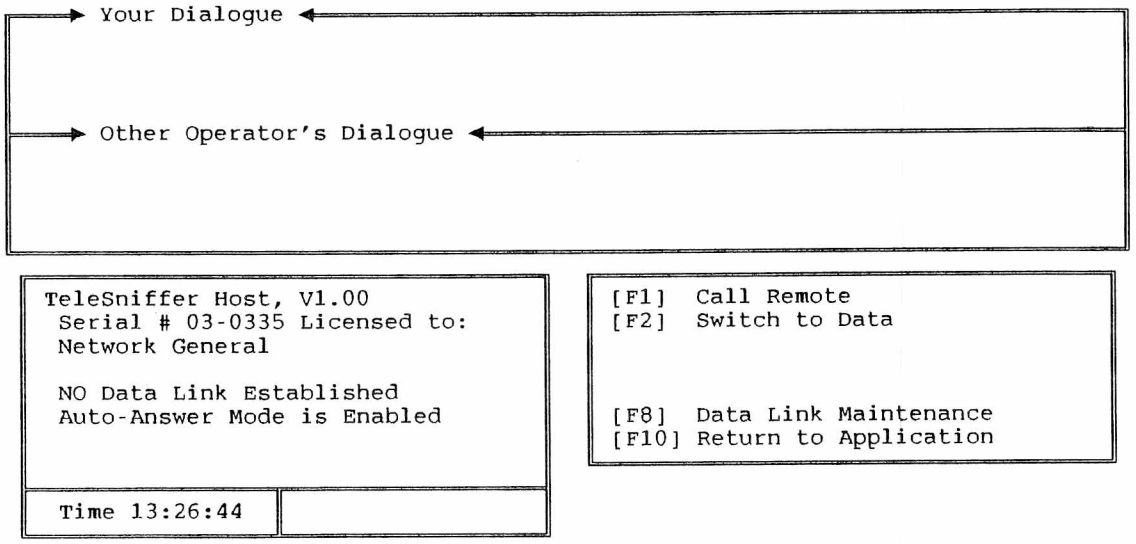

Figure 10. Control screen displayed on the host Sniffer and before the machines are connected.

However, after a remote PC is connected to the host Sniffer, the two windows at the bottom of the screen look like those shown in Figure 11 with the message, *Data Link Is Established*, in the bottom left window.

Since the displays of the two machines are linked, the remote PC user sees similar *TeleSniffer* screens. Indeed, once the connection has been established, only menu item *F5*, *File Transfer Packages* (compare the menus in the lower right windows of Figures 11 and 14), is unavailable on the host machine.

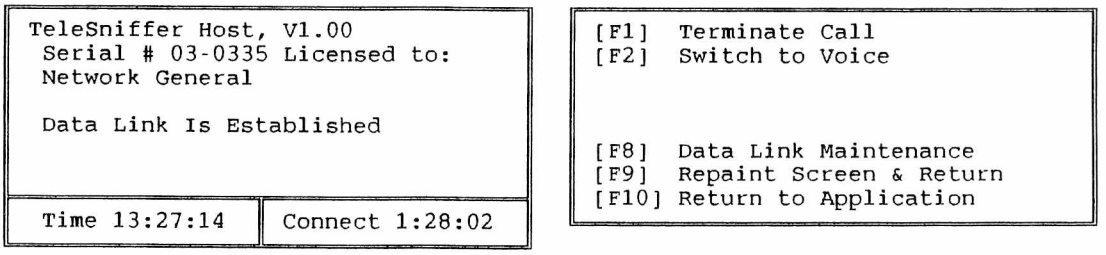

Figure 11. Two bottom windows of the control screen displayed after successful connection to the host Sniffer.

Chapter 6.
Starting *TSRemote* from a Remote PC

This chapter describes how you use a PC or a Sniffer as a remote station connected to a host Sniffer. The program is called *TSRemote*. The program refers to a configuration file, which must exist before you execute *TSRemote*. If you haven't got one, run *RemInst* before you try to run *TSRemote*. (See "Setting Up the Remote PC" above.)

Move to the drive and/or directory which contains *TSRemote*. (This varies, depending on the machine you are using and the way you have installed *TSRemote*.) From the DOS prompt, type

```
TSRemote
```

TSRemote brings up the *TeleSniffer* control screen which shows that the link has not yet been established (see Figure 12). You can see in the bottom left window the message, *NO Data Link Established.*

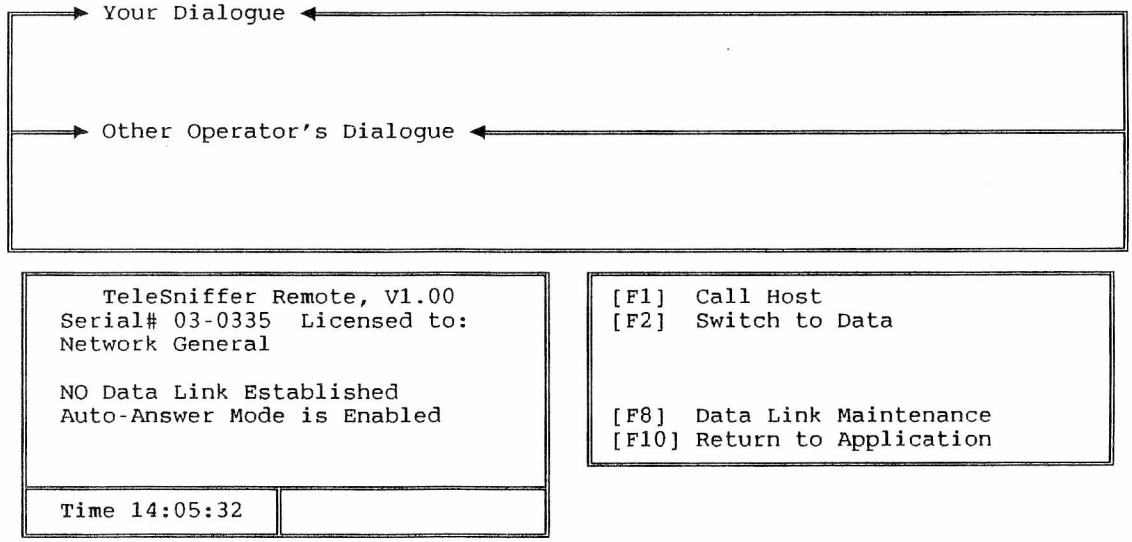

Figure 12. Control screen displayed on the remote PC and before the machines are connected.

If your remote station is a Sniffer, you can start *TSRemote* from the Sniffer's *Selection menu*. In the *Selection menu*, highlight *TeleSniffer Remote*, and press *Enter* (see Figure 9).

Call the Host Sniffer

To place a call to the host Sniffer, press *F1*. This opens two windows (see Figure 13). The one at the left shows the names entered in your call table (recorded by your earlier use of *RemInst*). You can select one of them by pressing the up or down arrow to highlight to the one you want. To call the highlighted name, press *Enter*.

Alternatively, before pressing *Enter*, you may type a telephone number from the keyboard. What you type appears in the window at bottom right. If you have typed anything there, *TSRemote* ignores the highlighting at the left and, instead, instructs the modem to dial the number you typed when you press *Enter*.

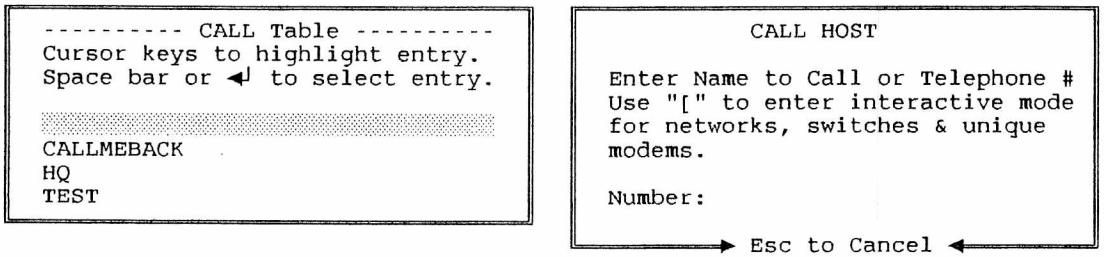

Figure 13. Two windows opened for selecting names from the Call Table or for typing a telephone number.

The Host Sniffer Checks the Connection

If you place your call by highlighting a name from the *Call Table* and if its entry in the *Call Table* included a password, *TSRemote* sends your password to the host.

But if you type the number yourself or if the *Call Table* provides no password, *TSRemote* next prompts you for a password. What you type is not displayed but is sent to the host when you press *Enter*.

In the case where the password you type is not in the *Password Table* of the host, you must strike the *Enter* key five or six times and enter the password again.

Connection?

If you do *not* see a screen transmitted from the host (but instead continue to see *NO Data Link Established*), you may want to press *F1* to try again or *F8* to try to troubleshoot the data link. See "Troubleshooting Tips" at the end of this manual. A common cause for a problem is a mis-match in speed between the two modems or the *RemInst* baud rate parameters at the two ends.

Connection!

If the host accepts your password, you are connected to the host Sniffer without further ado. The procedure takes a bit longer if the host Sniffer must call you back. The next screen you see is similar to the host's screen, and the lower left window displays the message, *Data Link Is Established* (compare Figures 11 and 14). *F5, File Transfer Package*, appears only on the remote user's menu, and access is available only if authorized.

Your next keystroke is transmitted to the host, just as it would be if you were in fact seated at the host machine.

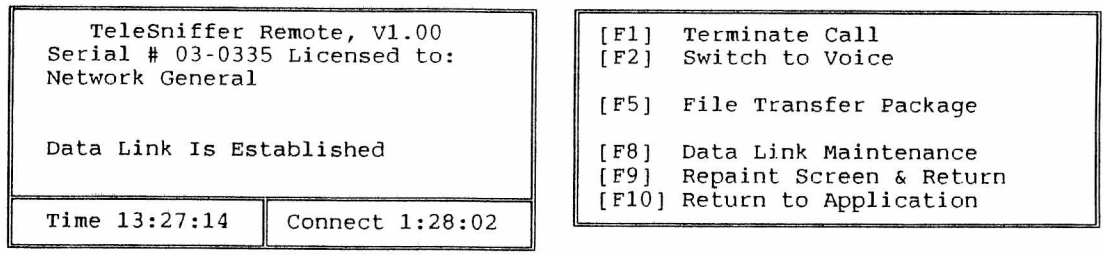

Figure 14. Two bottom windows displayed after successful connection from a remote station.

Chapter 7.
Using the *TeleSniffer* Control Screen

Once the link between remote and host has been established, both machines see essentially the same screen. Ordinarily, it is governed by whatever the host Sniffer is doing.

However, the operator at either machine can invoke the *TeleSniffer* control screen by keying the *TeleSniffer* escape sequence (i.e. *<Alt><Right-Shift>*, unless you've elected a different option). When either operator keys that sequence, the current display is replaced by the *TeleSniffer* control screen at both machines. This chapter describes each function key in the main *TeleSniffer* menu and the other major uses of the *TeleSniffer* control screen.

The Main *TeleSniffer* Menu

As you can see by comparing the menus in the lower right hand windows of Figures 11 and 14, essentially the same layout is used for both host and remote station's versions of the screen.

The available menu choices are as follows:

***F1* -- *Call Host*, *Call Remote*,** or ***Terminate Call*.** When the machine is not connected to a host or to a remote PC, this function key means *Call Host* or *Call Remote*. When the machine is connected, this function key means *Terminate Call*. (For more information on the *Call Host* function, see the section entitled "Call the Host Sniffer" above.)

F2* -- *Switch to Data or ***Switch to Voice*.** This is relevant only when you are using a modem which has a telephone handset connected to it. When the link is in data mode, the caption is *Switch to Voice*; when the link is in voice mode, the caption is *Switch to Data*.

When the machines are connected, pressing *Switch to Voice* sends a message to the other machine, indicating that the operator has requested voice transmission. When both operators have pressed *F2*, the two screens are frozen (since data is no longer being exchanged) and the two operators may talk. (See the section below entitled "Written and Voice Chats" for additional information.)

***F5* -- *File Transfer Package*.** This key is enabled only for the remote PC, only when the link is in effect, and only when the remote PC is authorized to use it in the host's *Password Table*. (See section below entitled "Transferring Files to and from the Host Sniffer" for additional information.)

F8 -- Data Link Maintenance. Brings up a submenu in the screen's lower right quadrant from which either host or remote user may examine the serial port, reset the line, or switch certain options, such as synchronization. (See the section below entitled "Data Link Maintenance" for additional information.)

F9 -- Repaint Screen & Return. In effect only when the machines are connected. Causes the host Sniffer to retransmit its screen image to the remote PC (in case the image there has been garbled by transmission problems). Either side can request this, but usually the request comes from the remote PC (where the need for repainting is evident).

F10 -- Return to Application. Discontinues the *TeleSniffer* screen and menu and returns the machine to what it was doing before.

When the link between the two machines is in effect, pressing *F10* returns them both to the mode in which whatever is displayed on the host Sniffer's screen is transmitted to the remote PC. That is, the host returns to whatever it was doing before (for example, Sniffing), and the remote PC returns to observing the host's Sniffing.

Leaving a *TeleSniffer* Screen or Session

If the *TeleSniffer* main menu is not on the screen, pressing the *TeleSniffer* escape sequence causes it to re-appear on both the host and the remote machines. From there, you can press *F1* to disconnect from the host or from the remote PC, or you can press *F10* to remove the *TeleSniffer* control screen and to resume watching what the host Sniffer is doing.

If the other machine crashes or hangs, you may find that your own keyboard and display are also frozen, such that the physical link remains in place but that you get no response from the host. As an emergency escape, you may exit to DOS by pressing *<Ctrl><Alt><Del>* while *TSRemote* or *TSHost* remains active on your machine.

Watch out: This exit signal is unusual. In most circumstances, *<Ctrl><Alt><Del>* is the signal for system reset. Better be sure you're really in *TSRemote* or *TSHost* before you use that special key sequence. While it is running, *TeleSniffer* traps *<Ctrl><Alt><Del>* and, instead, uses it to exit and to return to DOS without issuing a system reset.

Written and Voice "Chats"

To exchange written messages, the two operators have only to type in the topmost window of the *TeleSniffer* screen (see Figure 15). What each types is immediately displayed (character by character) on both screens. Both can type at the same time; you don't have to take turns. Whether or not you are at a host station or at a remote station, you see what you type in the window labeled *Your Dialogue* and what the other person types in the window labeled *Other Operator's Dialogue.*

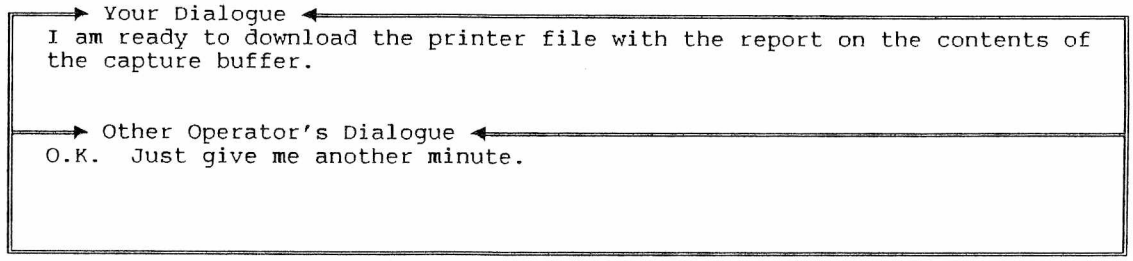
Your Dialogue
I am ready to download the printer file with the report on the contents of the capture buffer.
Other Operator's Dialogue
O.K. Just give me another minute.

Figure 15. Topmost window of the TeleSniffer control screen used to exchange written messages between a host and a remote station.

If what you have to communicate needs *vox humana* rather than keystrokes, either operator can press *F2, Switch to Voice,* to request that the line be used for voice. This presumes that both ends have a telephone handset as well as a modem. The option will not appear if you have a Hayes-compatible modem or if your modem has only a data line connection. When you press *F2,* you see the message shown in Figure 16.

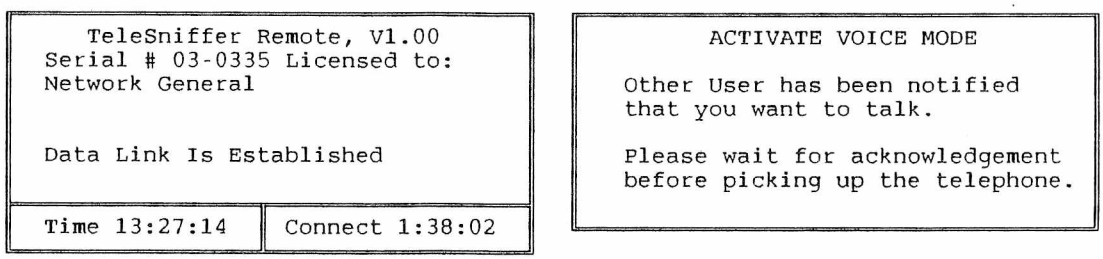
TeleSniffer Remote, V1.00
Serial # 03-0335 Licensed to:
Network General
Data Link Is Established
Time 13:27:14
Connect 1:38:02
ACTIVATE VOICE MODE
Other User has been notified that you want to talk.
Please wait for acknowledgement before picking up the telephone.

Figure 16. Window shown to user subsequent to selecting F2, Switch to Voice, on the TeleSniffer main menu.

When you're on the receiving end of such a request, you see the message shown in Figure 17, and you accept the request by pressing *Enter* or reject the request by pressing *Esc.*

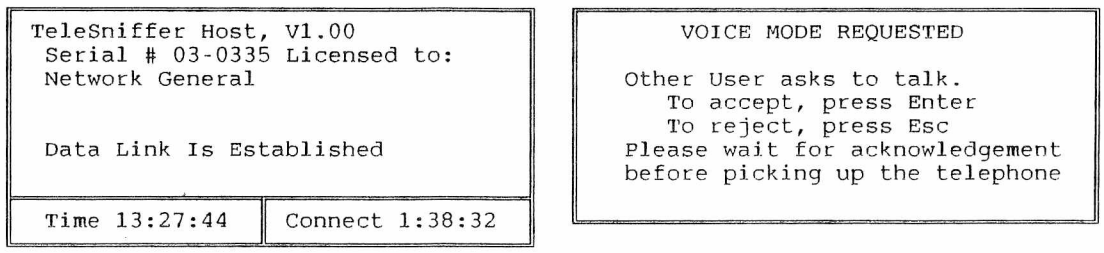

Figure 17. Window shown to user at other station subsequent to selecting F2, Switch to Voice, on the TeleSniffer main menu.

At either end, you shouldn't pick up the phone until you see the message, *VOICE MODE ENABLED.* At that point, you pick up the phone and press any key to quiet the modem. *TeleSniffer* switches the line to *VOICE MODE.*

Once the line is in voice mode, the *TeleSniffer* menu is frozen. No data can pass in either direction while the line is used for voice. At each end, when you hang up the phone, you press *F2* again to return to data mode and wait until the data link has been re-established before hanging up the telephone.

Data Link Maintenance

While both machines have the *TeleSniffer* menu, either can press *F8* to bring up the *Data Link Maintenance* menu. Only the person who actually pressed *F8* gets to see this menu. The other sees a display showing that the partner is doing datalink maintenance and cannot act until the person who pressed *F8* returns to the main *TeleSniffer* menu.

Maintenance Options

When you request *Data Link Maintenance*, *TeleSniffer* places a submenu in the lower right window of the screen (see Figure 18).

Some choices toggle between *ENABLE* and *DISABLE* when you press the appropriate function key. A choice is to *DISABLE* if the function is enabled, or it is to *ENABLE* if the function is disabled.

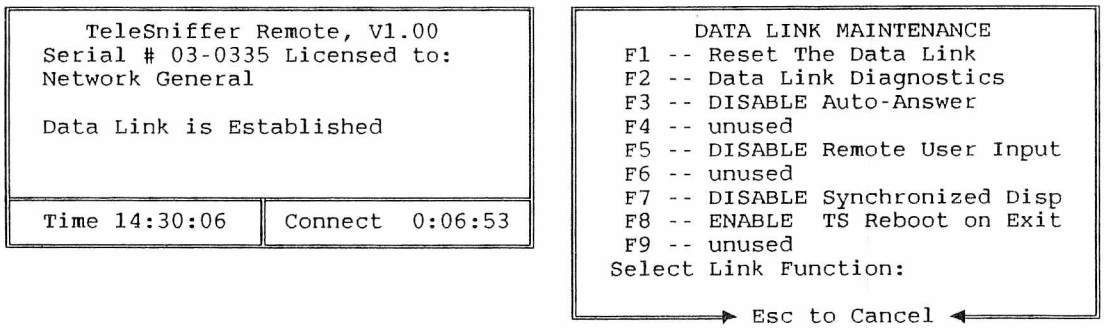

Figure 18. Data Link Maintenance submenu on the remote PC.

The available menu options are:

F1 -- Reset The Data Link. That's an engineer's way of saying "Hang up the phone." It disconnects the modem from the phone line.

F2 -- Data Link Diagnostics. This brings up windows in the bottom half of the screen in which you can see the status of the signals used to maintain communication (see Figure 19). It's useful in diagnosing problems with line or modem. You can set force some of the bits in an effort to get the two ends of the line handshaking properly.

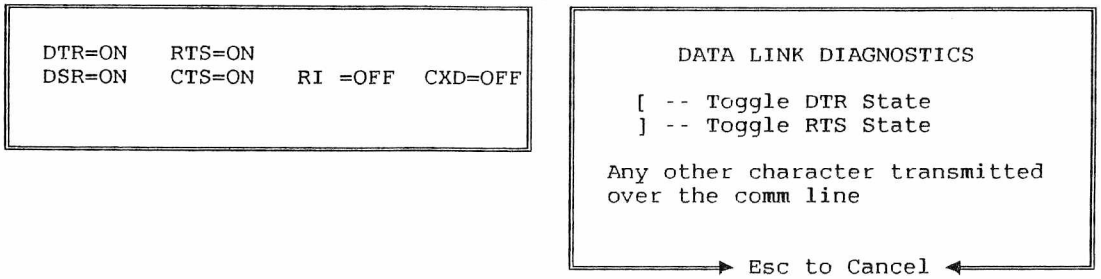
DTR=ON RTS=ON
DSR=ON CTS=ON RI =OFF CXD=OFF
DATA LINK DIAGNOSTICS
[-- Toggle DTR State
] -- Toggle RTS State
Any other character transmitted over the comm line
Esc to Cancel

Figure 19. Data Link Diagnostics windows.

F3 -- Auto-Answer. Whether your machine will answer next time it receives an incoming call.

F4 -- Unused or ***TeleSniffer.*** On the remote PC's submenu, it is not used. On the host Sniffer's submenu, it allows the operator to disallow incoming calls and the use of other communications software.

F5 -- Remote User Input. To make sure the two operators don't trip on each other's input, this permits either side to disable the other's keyboard. The message, *Your Keyboard Is Disabled*, appears on the other's screen. That operator may still continue to use the *TeleSniffer* control screen but cannot operate the Sniffer itself.

F6 -- Unused. Not used in the submenu.

F7 -- Synchronized Display. When synchronization is enabled, *TSHost* makes the host Sniffer wait so that its screen won't get (much) ahead of the display on the remote PC.

Don't use synchronization unless you need it. It forces the host Sniffer to slow down. You need synchronization when you can't afford to miss a piece of the display. For example, when you're in the file transfer module and you ask for a directory list, you don't want to risk skipping some unpredictable amount of it.

But if you're watching a real-time display of network activity, you couldn't read all of a continuous display anyway, and having a succession of snapshots is probably preferable.

F8 -- TS Reboot on Exit. Allows user to reboot once the *Telesniffer* session has ended.

F9 -- Unused. Not used in the submenu.

Transferring Files to and from the Host Sniffer

You can use the file transfer facility from the remote PC while it is connected to a host which has granted permission (TSDOS or LTD TSDOS). To activate file transfer, proceed as follows:

- If your screen is showing the host Sniffer's application, press the *TeleSniffer* escape sequence to bring up the *TeleSniffer* main menu. Doing that causes it to appear both on your screen and on the host's.

- Press *F5, File Transfer Package.*

  On your screen you see what looks like a return to DOS. However, this isn't DOS but TSDOS. You may now use a set of DOS-like commands for file transfer.

When you start TSDOS on the remote PC, the host Sniffer's screen displays the legend, *File Transfer Is Active*, in the bottom right window. The host's keyboard is frozen until you exit from *File Transfer* on the remote PC.

How TSDOS Distinguishes Host from Remote Drives

To permit you to write DOS-like commands, TSDOS allows the use of some standard DOS command names. (TSDOS intercepts and interprets the commands you type. Then it passes appropriate instructions to the operating systems of the two machines.)

When you're transferring files, you have to be able to talk about *two* machines:

- the local machine on which you're working,

  and

- the host machine to which you're connected.

TSDOS, therefore, introduces the following notation:

In every reference to a drive (for example, your local machine's drive A: or the host Sniffer's drive C:), the name of the drive must be preceded by the letter H (for host) or L (for local).

Thus, the command

```
HC:
```

means that the TSDOS default drive becomes the host machine's drive C.

File Transfer with the COPY Command

In TSDOS, you use the COPY command for file transfer. The local station may, thereby, get a listing of a file from a host station or may send a file to a host station.

For example, the command

```
copy HC:\capture\frames.enc LB:sample1.enc
```

causes *TeleSniffer* to copy the file `c:\capture\frames.enc` from the host Sniffer's C disk, and write it in the current directory of the local machine's B disk, and there name it `sample1.enc`.

During file transfer, you see messages on both stations showing the names of the files being transferred and the percentage of the transfer completed. On the remote PC, the machine from which the transferred is initiated, the message appears after you strike *Enter* (see Figure 20).

```
Local-A:\>COPY HD:\SNIFFER\TRDEMO\DIR.TXT LA:
 Copying File: HD:\SNIFFER\TRDEMO\DIR.TXT to LA:DIR.TXT
 Stream Copy
 % Completed  1.........25...........50...........75.........100
              ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■

Local-A:>
```

Figure 20. Message shown on the remote PC after issuing the TSDOS COPY command.

On the host machine, you see the message in the top window of the *TeleSniffer* screen in the *Remote Operator's Dialogue* box (see Figure 21).

```
──► Your Dialogue ◄──────────────────────────────────────────────────────

──► Remote Operator's Dialogue ◄─────────────────────────────────────────
  Reading File: D:\SNIFFER\TRDEMO\DIR.TXT
  % Completed
  1.........25...........50...........75.........100
  ■■■■■■■■■■■■■■■■■■■
```

Transfer Time and File Size with the DIR Command

The DIR command in TSDOS tells you something that the standard DIR command doesn't provide: in addition to reporting the file's *size* in bytes, it gives you an estimate of the *time* required to transfer each file that it lists. For example, Figure 22 shows the result of the request,

```
HC:> DIR HC:\archive\*.TRD
```

As a result of the request, the names of files having the suffix `.TRD` in the host's directory `c:\archive` are listed along with size and transfer time.

```
Local-A:\>DIR HD:\SNIFFER\TRDEMO\*.*

Directory of HD:\SNIFFER\TRDEMO\

.            <DIR>
..           <DIR>
STARTUP  TRD      1287   01-27-87   12:00a      0.1m
ADEMO    TRC     13136   01-27-87   12:00a      1.1m
BDEMO    TRC     13394   01-27-87   12:00a      1.1m
MDEMO    TRC      4278   01-27-87   12:00a      0.3m
PDEMO    TRC      4959   01-27-87   12:00a      0.4m
SDEMO    TRC      4667   01-27-87   12:00a      0.4m
TDEMO    TRC      6336   01-27-87   12:00a      0.5m
MDEMO    TRS       262   01-27-87   12:00a      0.0m
BC1000   TRC    205494   04-03-87   07:04a     17.6m
DIR      TXT       593   10-21-87   09:51a      0.0m
12 Files, Containing 254406 Bytes
```

Figure 22. Transfer time and file size as a result of the DIR command.

Summary of TSDOS Commands

The following commands may be used from within TSDOS. Note that you may not execute DOS commands other than those listed here nor run any other executable file, either in the local machine or the host Sniffer. (Of course, you are always free to do either of those when you return to the regular operation of *TeleSniffer*.)

CHDIR, CD Change the current working directory to the directory you indicate.

COPY Create a duplicate of the file(s) named in the first argument. The duplicate is written on the drive and with the name indicated in the optional second argument. If the second argument is omitted, the destination drive is the current working drive. Drive names must include the prefix *H* (host) or *L* (local).

DELETE, DEL Delete the file(s) named in the argument.

DIR List the files in the indicated directory (or in the current directory if no directory is named).

EXIT Exit TSDOS and return to *TeleSniffer* control screen.

HELP Display a summary of TSDOS commands.

HOSTINST Run the installation and setup procedure for *TeleSniffer* on the host station.

MKDIR, MD Create a new directory (or subdirectory).

PROMPT Toggle on or off display of the current directory in the TSDOS prompt. When on, the directory is displayed, in addition to the drive name (which is always displayed, with the prefix *H* or *L* as appropriate).

REMINST Run the installation and setup procedure for *TeleSniffer* on the remote station.

RENAME, REN Rename the specified file. The drive and directory may be omitted from the new name but (whether included or omitted) must be the same for the new name as the old.

TSHOST Invokes *TeleSniffer* on the host station.

TSREMOTE Invokes *TeleSniffer* on the remote PC station.

TYPE Display the indicated file at the screen.

Appendix A. Troubleshooting Tips

The following possible situations attempt to answer some common queries.

If a remote PC does not match the speed of changes in the Sniffer's display

1. Suppress the cosmetic visual effects of the Sniffer when you start it up by including *noscroll* as a command line parameter.

2. Force the Sniffer to slow down. One way to accomplish this is to synchronize the remote PC with the Sniffer. This is the default setting in the *Data Link Maintenance* submenu

3. Disable the synchronization option in the *Data Link Maintenance* submenu. One consequence of this is that a remote PC misses some of a Sniffer's output.

If the TeleSniffer escape sequence does not bring up the TeleSniffer control screen

1. Check the settings selected for both the TeleSniffer escape sequence and the repaint escape sequence in the *Optional Configuration* Parameters submenu, and be certain that they are not the same.

If the screen image is garbled due to transmission problems

1. Press *F9, Repaint Screen and Return*, on the main *TeleSniffer* menu. The image will be re-transmitted.

If you get the warning, "Warning...CTS (Clear To Send) Is Not Presently Asserted"

1. The message means that the modem is probably not responding correctly. First, check to see that it is turned on.

2. If it is not turned on, turn it on and reset the communications line by pressing *F8, Data Link Maintenance*, on the *TeleSniffer* main menu and *F1, Reset the Data Link*, on the *Data Link Maintenance* submenu.

3. If the modem is turned on, you may have a hardware problem. Check to see if you have two communications boards assigned to the same interrupt vector or to the same I/O address. You may change the configuration in the main menus of *RemInst* and *HostInst*.

If the other machine crashes or hangs

1. Exit to DOS by pressing <Ctrl><Alt><Del>. Be certain you are running *TSRemote* or *TSHost* before issuing this escape sequence, otherwise you may reset your system.

If you do not see a screen transmitted from the host station and continue to see the message, NO Data Link Established, after connection attempts

1. If you saw the CTS warning error message described in the situation above, then follow the troubleshooting steps outlined for that situation.

2. If you did not get that message, press *F1, Call Host,* on the *TeleSniffer* main menu, and try again.

3. If problem still persists check to see if the modem you chose in *RemInst* or in *HostInst* match the modem in use.

4. If the modems do match, then press *F8, Data Link Maintenance,* on the *TeleSniffer* main menu and *F2, Data Link Diagnostics.* In the box in the lower left hand corner of the *TeleSniffer* control screen, the DTR, RTS, and CTS indicators should read *ON,* and the CXD indicator should read *OFF.*

5. If the indicators are not as described in step 4, one possibility is that you may have two communications ports configured for the same address. Change the configuration in the main menus of *RemInst* and *HostInst.*

6. Another possibility is a cabling problem between the communcations board and the modem. Check the cabling requirements in the section, "Cable Connections to the Sniffer's Serial Port," and make the necessary changes.

7. You can toggle the DTR indicator light *ON* and *OFF* with "[" if you modem has one. When DTR is *OFF,* the light should be on, and when DTR is *ON,* the light should be off. If you can't do this, the problem may be with either the communications port configuration or with the cabling. Follow the instructions in steps 5 and 6 if you have not tried them.

8. Since you use a Hayes or a Hayes-compatible modem, you can type the letters *AT* followed by *Enter.* You should see *AT* in the *Your Dialogue* box and *OK* or *0* in the *Remote Operator's Dialogue* box. If not, the problem may be with either the communications port configuration or with the cabling. Follow the instructions in steps 5 and 6 if you have not tried them.

9. You can also type the letters *ATDT* followed by *Enter.* You should hear a ringing or buzzing sound from the modem and be able to turn it off by typing *AT* followed by *Enter.* If you do not hear ringing or buzzing, you probably have a cabling problem. Follow the instructions in step 6 if you have not tried them.

Appendix B. Glossary

Carbon Copy PLUS — A product developed by Meridian Technology, Inc. and licensed by Network General Corporation to use some of its features as *TeleSniffer*.

Host Station — A Sniffer to which is connected a remote PC station (either an IBM, an IBM-compatible, or another Sniffer) via *TeleSniffer*. When linked by *TeleSniffer*, it can then be controlled and operated from the remote PC and used to transfer files, to "chat," and to provide maintenance.

HostInst — The installation module for *TSHost*. It is used to create or to revise the *TeleSniffer* configuration file on a host station.

RemInst — The installation module for *TSRemote*. It is used to create or to revise the *TeleSniffer* configuration file on a remote station.

Remote Station — A PC (an IBM, an IBM-compatible, or another Sniffer) connected to a Sniffer host station via *TeleSniffer*. When linked by *TeleSniffer*, it becomes a remote keyboard and screen for a host Sniffer.

Sniffer — Network General Corporation's tool for collecting, analyzing, and interpreting data transmitted in a local area network. Versions exist for use with various types of networks, including Ethernet, IBM Token Ring, Arcnet, and StarLAN.

TeleSniffer — Software included with the Sniffer which permits operation and control of a Sniffer from a remote station.

Control Screen — The screen with windows and menus by which a user at either a remote PC or a host Sniffer utilizes the available features of *TeleSniffer*.

TSDOS — A set of DOS-like commands which, if a host station permits, allows a remote station to perform some DOS related functions. It includes the COPY command, a feature used for file transfer.

TSHost — The program which runs a host Sniffer. Once invoked, it runs in the background of a Sniffer until called by a remote PC.

TSRemote — The program which runs a remote PC. It calls and then handles communication with a Sniffer host station.

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Network General Corporation
1945A Charleston Road
Mountain View, California 94043